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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/786,097	02/26/2004	Masahiro Kawasaki	500.43534X00	2499

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EXAMINER

PRENTY, MARK V

ART UNIT	PAPER NUMBER
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2822

DATE MAILED: 06/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/786,097

Applicant(s)

KAWASAKI ET AL.

Examiner

MARK V. PRENTY

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-16 and 22-26 is/are allowed.
- 6) ☒ Claim(s) 17-20 is/are rejected.
- 7) ☒ Claim(s) 21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date February 26, 2004.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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This Office Action is in response to the papers filed on February 26, 2004.

Claims 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent 6,569,707 to Dimitrakopoulos et al. (Dimitrakopoulos) together with United States Patent 6,858,527 to Gracias.

With respect to independent claim 17, Dimitrakopoulos discloses a semiconductor device (see the entire patent, including the Fig. 1 disclosure, for example) using a thin-film transistor obtained by laminating a gate electrode 14, a gate insulator 12, a source electrode 16, a drain electrode 16 and a semiconductor layer 20 in that order on an insulating substrate 10, wherein an organic compound layer 18 different from said semiconductor layer is present between each of said source and drain electrodes and said semiconductor layer.

The difference between claim 17 and Dimitrakopoulos is claim 17 further recites: "and the average thickness of the organic compound layer is not more than 10 Å and not less than 1 Å" (Dimitrakopoulos does not disclose the thickness of its organic compound layer 18, which is a self-assembled monolayer comprising a thiol compound (see the paragraph bridging columns 5 and 6, for example)).

Gracias teaches that a self-assembled monolayer comprising a thiol compound has a thickness of approximately 10 Å to 20 Å (see the entire patent, including the Abstract, for example).

It would have been obvious to one skilled in this art that Dimitrakopoulos's organic compound layer 18, which is a self-assembled monolayer comprising a thiol

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compound, is approximately 10 Å thick, because Gracias teaches that a self-assembled monolayer comprising a thiol compound is approximately 10 Å thick.

Claim 17 is thus rejected under 35 U.S.C. 103(a) as being unpatentable over Dimitrakopoulos together with Gracias.

With respect to dependent claim 18, the organic compound layer 18 present between each of Dimitrakopoulos's source and drain electrodes 16 and semiconductor layer 20 has a thiol group (see the paragraph bridging columns 5 and 6).

Claim 18 is thus rejected under 35 U.S.C. 103(a) as being unpatentable over Dimitrakopoulos together with Gracias.

With respect to dependent claim 19, the organic compound layer 18 present between each of Dimitrakopoulos's source and drain electrodes 16 and semiconductor layer 20 is an alkane thiol (see the paragraph bridging columns 5 and 6).

Claim 19 is thus rejected under 35 U.S.C. 103(a) as being unpatentable over Dimitrakopoulos together with Gracias.

With respect to dependent claim 20, Dimitrakopoulos's source and drain electrodes 16 are made of gold, silver, copper, platinum, palladium, tin, or an alloy or mixture containing two or more of these metals (see column 5, lines 29-38).

Claim 20 is thus rejected under 35 U.S.C. 103(a) as being unpatentable over Dimitrakopoulos together with Gracias.

Claim 21 is objected to as being dependent upon a rejected base claim, but would be allowable over the prior art of record if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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Claims 1-16 and 22-26 are allowable over the prior art of record.

The prior art of record does not disclose or suggest the allowable thin-film transistors taken as a whole, including the semiconductor layers.

United States Patent Application Publication 2005/0056897 is related to this application.

Registered practitioners can telephone the examiner at (571) 272-1843. Any voicemail message left for the examiner must include the name and registration number of the registered practitioner calling, and the Application/Control (Serial) Number. Technology Center 2800's general telephone number is (571) 272-2800.

  
Mark V. Prenty  
Primary Examiner